

## CLAIMS

1. A hot-gas blowing fan comprising a heat resisting impeller cantilevered by a rotating shaft, a bearing attached to the rotating shaft, a heat insulating layer disposed between the impeller and the bearing and a cooling portion disposed between the heat insulating layer and the bearing, wherein a first coupling to be mated with another magnetic coupling is disposed on the shaft end of the rotating shaft at the side opposite to the impeller and a non-magnetic partition wall is disposed between the first coupling and a second coupling to be mated with the first magnetic coupling is disposed on the shaft end of the driving shaft of a motor, whereby a space surrounding the rotating shaft is hermetically sealed from an outer field by the non-magnetic partition wall and a casing.
2. The hot-gas blowing fan according to Claim 1, wherein an inert gas is filled in the hermetically sealed space.
3. A hot-gas blowing fan comprising a heat resisting impeller cantilevered by a rotating shaft, a bearing attached to the rotating shaft, a heat insulating layer disposed between the impeller and the bearing, which further comprises an air cooling means comprising a heat receiving portion disposed between the heat insulating layer and the bearing, an air cooling/radiating portion provided at an outer side of a casing and a heat transporting portion connecting the heat receiving

portion to the air cooling/radiating portion.

4. The hot-gas blowing fan according to Claim 3, wherein the heat receiving portion and the heat transporting portion are unified to form a thermo-siphon heat pipe.

5 5. The hot-gas blowing fan according to Claim 1, wherein the cooling portion is an air cooling means comprising a heat receiving portion disposed between the heat insulating layer and the bearing, an air cooling/radiating portion provided at an outer side of 10 the casing and a heat transporting portion connecting the heat receiving portion to the air cooling/radiating portion.

6. The hot-gas blowing fan according to any one of Claims 1 to 5, wherein an inertia dust collector is 15 provided at the inlet port of a scroll.

7. The hot-gas blowing fan according to any one of Claims 1 to 6, which is used for a solid oxide fuel cell.